

FIG. 1

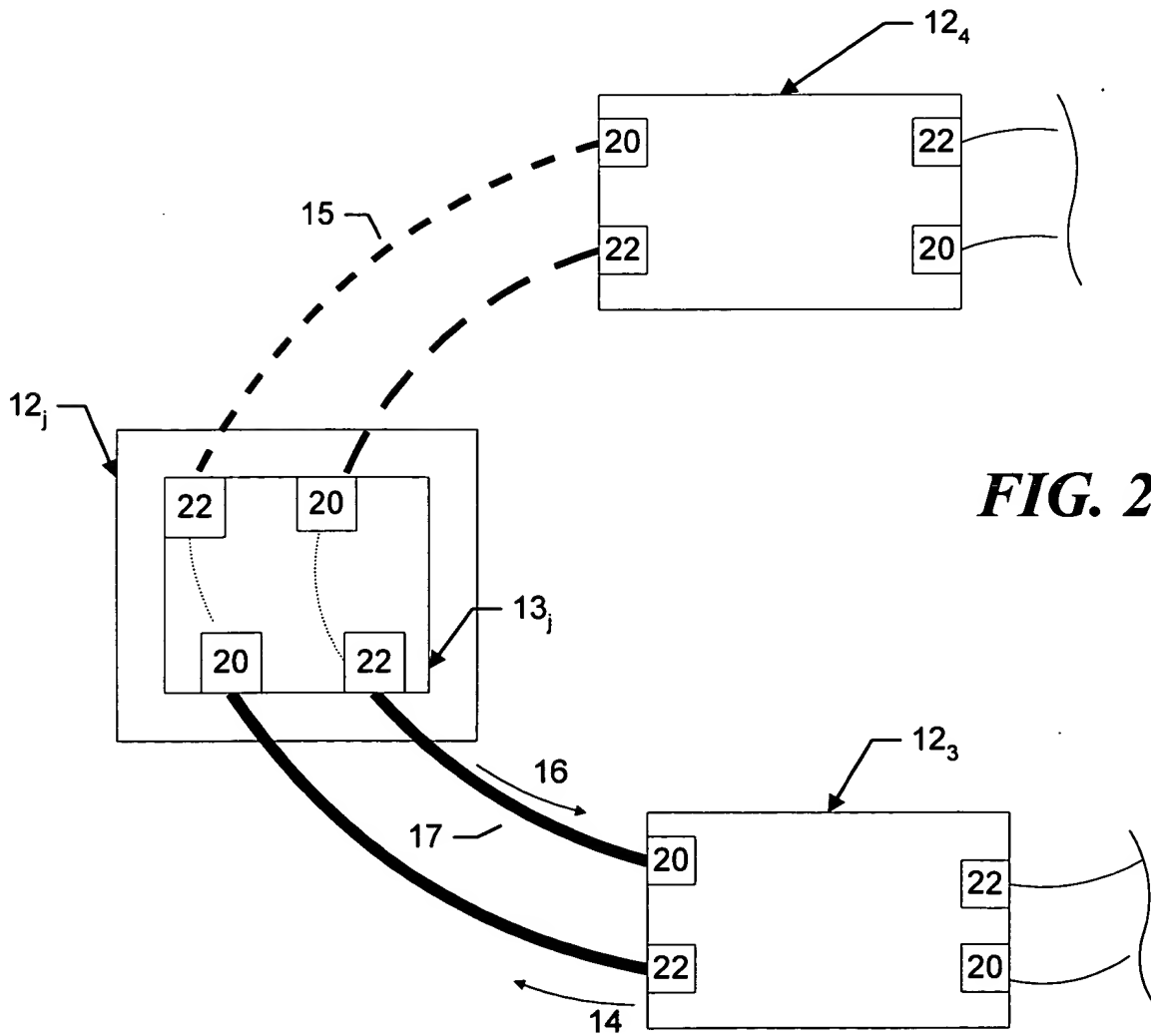


FIG. 2

NODE 12, OPERATES AS AN OPTICAL BYPASS

THE NODE 12, OPERATES TO PASS THE EXISTING
VIRTUAL PATHS THROUGH THE NODE INTERFACES

NODE 12_j ESTABLISHES CONNECTION TO WELL KNOWN INTRA-RING MANAGEMENT CHANNEL

**NODE 12, AND HUB NODE 12, COMMUNICATE OVER THE
ESTABLISHED INTRA-RING MANAGEMENT CHANNEL**

IN RESPONSE TO A REQUEST FROM THE NODE 12, THE HUB NODE
ASSIGNS TO THE NODE ONE OR MORE VIRTUAL PATHS FOR
SENDING TRAFFIC TO THE OTHER NODES IN THE NETWORK

THE HUB SENDS TO THE OTHER NODES RING TOPOLOGY
UPDATES THAT INCLUDE NEWLY ASSIGNED VIRTUAL PATHS

THE HUB NODE ESTABLISHES A SIGNALLING CHANNEL WITH THE NODE 12, ON AN ASSIGNED VIRTUAL PATH

THE HUB NODE DOWNLOADS VIRTUAL PATH AND VIRTUAL CIRCUIT TABLES TO NODE 12;

NODE 12j PARTICIPATES FULLY IN RING OPERATIONS

FIG. 3

THE HUB NODE DETERMINES A NODE
HAS FAILED BY A LACK OF
COMMUNICATION FROM THE NODE

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PROTECTION SWITCHING IS
INITIATED AS NEEDED

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THE REMAINING NODES ARE
INSTRUCTED TO TEAR DOWN THE
VIRTUAL PATHS AND VIRTUAL CIRCUITS
ASSOCIATED WITH THE FAILED NODE

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THE REMAINING NODES ARE INSTRUCTED TO
UPDATE THEIR RING TOPOLOGY INFORMATION
AND ROUTING TABLES TO REMOVE THE FAILED
NODE

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FIG. 4